

AMENDMENTS TO THE CLAIMS

Listing of Claims

This listing of claims replaces all prior versions, and listings, of claims in the application.

1-38. (Cancelled)

39. (New) A system comprising:

a first projection system capable of providing first light for forming part of an image, the first projection system comprising:

an adjustable bandpass filter of the first projection system for filtering the first light by optically controlling a spectral energy distribution of the first light in at least one color channel of three color channels, wherein the first light is produced by an illumination source of the first projection system; and

an SLM device for each color channel of the three color channels of the first projection system, the SLM device for each color channel of the first projection system being capable of modulating the first light filtered by the adjustable bandpass filter of the first projection system, wherein the first projection system is capable of projecting the first light modulated by the SLM device for each color channel of the three color channels of the first projection system; and

a second projection system capable of providing second light for forming part of the image, the second projection system comprising:

an adjustable bandpass filter of the second projection system for filtering the second light by optically controlling a spectral energy distribution of the second light in at least one color channel of three color channels, wherein the second light is produced by an illumination source of the second projection system; and

an SLM device for each color channel of the three color channels of the second projection system, the SLM device for each color channel of the second projection system being capable of modulating the second light filtered by the adjustable bandpass filter of the second projection system, wherein the second projection system is capable of projecting the second light modulated by the SLM device for each color channel of the three color channels of the second projection system,

wherein the adjustable bandpass filter of the first projection system and the adjustable bandpass filter of the second projection system are capable of balancing color of the first light with color of the second light without reducing an overall brightness of the first light and the second light,

wherein the first light and the second light are capable of being tiled on a screen to form the image.

40. (New) The system of claim 39, wherein the first projection system further comprises:

an integrating device for integrating the first light filtered by the adjustable bandpass filter of the first projection system;

a color separating and re-combining device for receiving the first light integrated by the integrating device, separating the first light into the three color channels, directing the first light separated into each of the three color channels into the SLM device of the first projection system corresponding to a respective color channel, and re-combining the first light modulated by the SLM device for each color channel of the three color channels of the first projection system to form part of the image from the first light; and

a projection lens for projecting the part of the image from the first light received from the color separating and re-combining device.

41. (New) The system of claim 40, wherein the first projection system further comprises:

an illumination relay in a light path between the integrating device and the separating and re-combining device, the illumination relay being capable of focusing the first light integrated by the integrating device and directing the first light into the color separating and re-combining device.

42. (New) The system of claim 39, wherein the first light comprises main first light and secondary first light and the illumination source of the first projection system comprises:

a main illumination source capable of producing the main first light having a wavelength distribution of a red portion, a green portion, and a blue portion of a light spectrum; and

at least one secondary illumination source capable of producing the secondary first light having a wavelength distribution of at least one of the red portion, the green portion, or the blue portion of the light spectrum, the secondary first light having less optical power than the main first light,

wherein the first projection system is capable of controlling the spectral energy distribution of the first light by adjusting an amount of the secondary first light produced by the at least one secondary illumination source.

43. (New) The system of claim 42, wherein the first projection system is capable of determining the amount of the secondary first light to adjust by:

determining chromaticities of each primary color using the main illumination source; and

determining an amount of secondary first light to combine with the main first light to result in first light having a desired chromaticity for each primary color.

44. (New) The system of claim 42, wherein the first projection system is capable of adjusting the amount of the secondary first light produced by the at least one secondary illumination source by controlling power supplied to the at least one secondary illumination source.

45. (New) The system of claim 42, wherein the adjustable bandpass filter of the first projection system is capable of optically controlling the spectral energy distribution of the first light in at least one color channel of three color channels by optically attenuating the secondary first light.

46. (New) The system of claim 42, wherein the at least one secondary illumination source of the first projection system is associated with an adjustable dichroic filter for allowing a spectral energy distribution of the at least one secondary illumination source of the first projection system to be shifted toward longer or shorter wavelengths.

47. (New) The system of claim 39, wherein the adjustable bandpass filter of the first projection system is capable of optically controlling the spectral energy distribution of the first light in at least one color channel of three color channels by adjusting an amount of each primary color of the first light, wherein the adjustable bandpass filter of the first projection system is capable of determining the amount by:

determining chromaticities of each primary color of the first light when the adjustable bandpass filter of the first projection system is in a neutral position; and
adjusting the adjustable bandpass filter of the first projection system until the first light has a desired chromaticity for each primary color.

48. (New) A method comprising:

providing first light for forming a first part of an image, the first light being provided by a first projection system;

providing second light for forming a second part of the image, the second light being provided by a second projection system;

filtering the first light and the second light by optically controlling a spectral energy distribution of each of the first light and the second light in at least one color channel of three color channels to balance color of the first light with color of the second light without reducing an overall brightness of each of the first light and the second light, the first light being filtered by the first projection system and the second light being filtered by the second projection system;

modulating the first light filtered by the first projection system for each color channel of the three color channels and modulating the second light filtered by the second projection system for each color channel of the three color channels; and

projecting the first light onto a screen by the first projection system and projecting the second light onto the screen by the second projection system,

wherein the first light projected onto the screen and the second light projected onto the screen are tiled to form the image.

49. (New) The method of claim 48, wherein providing first light for forming the first part of the image comprises:

providing first main light by a main illumination source of the first projection system; and

providing first secondary light by at least one secondary illumination source of the first projection system, the first secondary light having less optical power than the first main light,

wherein providing first secondary light by at least one secondary illumination source of the first projection system comprises controlling the spectral energy distribution of the first light to balance color of the first light with color of the second light without reducing the overall brightness of the first light by adjusting an amount of the first secondary light provided by the at least one secondary illumination source of the first projection system.

50. (New) The method of claim 49, wherein adjusting the amount of the first secondary light provided by the at least one secondary illumination source of the first projection system comprises controlling power supplied to the at least one secondary illumination source of the first projection system.

51. (New) The method of claim 49, wherein adjusting the amount of the first secondary light provided by the at least one secondary illumination source of the first projection system comprises optically attenuating the first secondary light.

52. (New) The method of claim 49, wherein adjusting the amount of the first secondary light provided by the at least one secondary illumination source of the first projection system comprises:

determining chromaticities of each primary color of the first light using the main illumination source of the first projection system alone; and

determining an amount of first secondary light from the at least one secondary illumination source of the first projection system needed to bring the first light to a desired chromaticity for each primary color.

53. (New) The method of claim 48, wherein filtering the first light and the second light by optically controlling the spectral energy distribution of each of the first light and the second light in at least one color channel of three color channels to balance color of the first light with color of the second light without reducing an overall brightness of each of the first light and the second light comprises

adjusting an amount of each primary color of the first light by:

determining chromaticities of each primary color of the first light when an adjustable bandpass filter of the first projection system is in a neutral position; and
adjusting the adjustable bandpass filter of the first projection system until the first light has a desired chromaticity for each primary color.

54. (New) A system comprising:

a first projection system and a second projection system, each of the first projection system and the second projection comprising:

a plurality of SLM devices, one for each color channel;

a main illumination source for providing main light;

at least one secondary illumination source for providing secondary light having less optical power than the main light;

an adjustable bandpass filter for optically controlling a spectral energy distribution of at least one color channel of at least one of the main light or the secondary light by filtering the main light and the secondary light, the first adjustable bandpass filter being adjustable to balance color by controlling color variations of the main light and the secondary light;

an integrating device for integrating the main light and the secondary light as filtered by the adjustable bandpass filter;

a color separating and re-combining device for receiving integrated light from the integrating device, separating the integrated light into each color

channel, directing the light in each color channel to a respective SLM device, and re-combining modulated light from the plurality of SLM devices to form part of an image; and

a projection lens for projecting the part of the image from the color separating and re-combing device,

wherein the part of the image projected by the first projection system and the part of the image projected by the second projection image are capable of being tiled on a screen to form the image without reducing overall brightness of the image.